संगणक सांकेतांक-२०१११२३०११२०२३१२२३००१

इमारत व इतर बांधकाम कामगार - आरोग्य व सुरक्षा विषयक मार्गदर्शक सुचना

महाराष्ट्र शासन

उद्योग, ऊर्जा व कामगार विभाग,
शासन निर्णय क्रमांक : इमारत २०११/प्र.क्र.२८३/कामगार ७-अ
मंत्रालय, मुंबई- ३२.
दिनांक : १३ डिसेंबर, २०११.

वाचा - अ) नियम व अधिनियम

१) इमारत व इतर बांधकाम कामगार (रोजगार नियमन व सेवाशर्ती) अधिनियम १९९६
२) इमारत व इतर बांधकाम कामगार कल्याण उपकर अधिनियम १९९६
३) इमारत व इतर बांधकाम कामगार कल्याण उपकर नियम १९९८
४)महाराष्ट्र इमारत व इतर बांधकाम कामगार (रोजगार विनियमन व सेवाशर्ती) नियम २००७ दि.५.२.२००७

प्रस्तावना :-

इमारत व इतर बांधकाम कामगारांच्या कल्याणाकरीता केंद्र शासनाने इमारत व इतर बांधकाम कामगार (रोजगार नियमन व सेवाशर्ती) अधिनियम १९९६ व इमारत व इतर बांधकाम कामगार कल्याण उपकर अधिनियम १९९६ हे दोन अधिनियम पारीत केलेले आहेत. त्यातील तरतुदीनुसार महाराष्ट्र इमारत व इतर बांधकाम कामगार (रोजगार नियमन व सेवाशर्ती) नियम २००७ प्रसारीत करण्यात आले आहेत. तथापि त्याची बांधकामाच्या प्रत्यक्ष जागेवर अद्याप सुयोग्य अंमलबजावणी व्यावसायीकांकडून होत नसल्यामुळे इमारत व इतर बांधकामावर होणाऱ्या अपघातांची संख्या मोठया प्रमाणावर आहे. अशा अपघातामध्ये मजूर अपघातग्रस्त होवून मृत्युमुखी पडलेले आहेत आणि क्षतीग्रस्त होऊन कायम स्वरुपी अपंग झाले आहेत. बांधकाम संस्था,कंत्राटदार व बांधकाम नियोत्यांना याकरीता इमारत व इतर बांधकाम कामगारांची विशेष काळजी घेण्यासाठी सविस्तर काळजी घेण्यासाठी सविस्तर मार्गदर्शक सुचना सर्व संबंधितांना देण्याची बाब शासनाच्या विचाराधीन होती. त्यानुसार पुढिलप्रमाणे आदेश देण्यात येत आहेत.

शासन निर्णय :-

इमारत व इतर बांधकाम कामगार (रोजगार नियमन व सेवाशर्ती) अधिनियम १९९६ व महाराष्ट्र इमारत व इतर बांधकाम कामगार (रोजगार नियमन व सेवाशर्ती) नियम २००७ या दोन्हीचेही पालन करणे बांधकाम व्यावसायीकांवर बंधनकारक असून यातील तरतुदीनुसार बांधकाम कामगारांना कामाच्या ठिकाणी सुरक्षितता व आरोग्यदायी वातावरण देणे आवश्यक आहे. इमारत व इतर बांधकाम कामगार (रोजगार विनियम व सेवाशर्ती) अधिनियम १९९६ व यासंबंधित नियम लागू होणा-या शासकीय, खाजगी संस्था किंवा वैयक्तीक आस्थापनांनी तसेच बांधकामा संबंधित सर्वांनी कामगारांचे आरोग्य व सुरक्षितता याबाबतच्या खालील मुद्यांच्या आधारे तयार करण्यात आलेल्या मार्गदर्शक सुचना सोबत परिशिष्ट-अ येथे जोडल्या आहेत. तसेच याबाबतीत तपशिलवार मानके (Standards) भारतीय मानक ब्युरो (BIS) यांनी मार्च, २००१ मध्ये SP70:2001 प्रमाणे निर्धारित केलेली आहे. त्यांचे पालन करणे संबंधित बांधकाम व्यावसायीक/कॉन्ट्रॅक्टर/सबकॉन्ट्रॅक्टर/ट्रान्सपोर्ट/संबंधित सर्व नियोक्ता यांचेवर बंधनकारक करण्यात येत आहे. यानुषंगाने अन्य बाबींसोबत खालील बाबींचा समावेश आहे.

१. बांधकाम आस्थापनांनी करावयाची नोदणी व प्रयोज्यता
२. बांधकाम व्यावसायीकांची कर्तव्ये व जबाबदाऱ्या
३. आरोग्य व सुरक्षितता धोरण
४. बांधकाम विषयक धोक्यांचे निर्धारण
५. बांधकाम विषयक मशीन, उपकरणे यांची हाताळणी व सुरक्षितता
६. उंचीवरील कामाबाबतची सुरक्षितता
७. उतरत्या छपराचे बांधकाम, दुरुस्ती व त्याचे परिरक्षण करणे
८. मचाणावरील काम
९. शिडयांचा सुरक्षित वापर
१०. बॅरिकेटस्
११. विद्युत उपकरणांची सुरक्षा व हाताळणी
१२. वैयक्तिक वापराची सुरक्षा उपकरणे
१३. उदवाही/उच्चालन उपकरणे
१४. वाहतुक व माती हलविण्याची साधनसामग्री
१५. उत्खनन व बोगदा करण्याबाबतची सुरक्षा व आरोग्य
१६. काँक्रीटचे बांधकाम
१७. मालाची हाताळणी, साठवणी व व्यवस्थापन
१८. वर्क परमिट यंत्रणा
१९. आगीपासूनची सुरक्षा
२०. स्वास्थ्य व आरोग्य
२१. कामाचे तास
२२. कल्याणकारी उपक्रम
२३. आपतकालीन यंत्रणा
२४. समुपदेशन
२५. भारतीय मानकांनुसार सुरक्षा कोड.

उपरोक्त मार्गदर्शक तत्वे (सोबतचे परिशिष्ट-अ) व SP70:2001 मानके (परिशिष्ट-ब मध्ये सूची (इंडेक्स) जोडण्यात आलेली असून सदर मानके www.bis.org.in या वेबसाईटवर उपलब्ध आहेत) तसेच यापुर्वी प्रसिध्द झालेले कायदे व नियम यांचे पालन करणे बांधकाम व्यावसायिक व सर्व संबंधित यांचेवर बंधनकारक राहील. या तरतुदींचे उल्लंघन झाल्यास ते, संबंधित अधिसुचना व नियमातील तरतुदीनुसार शिक्षेस पात्र ठरतील.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नांवाने,

(डॉ.कविता गुप्ता)
प्रधान सचिव,कामगार

प्रत-
मा.राज्यपाल यांचे सचिव,
मा.मुख्यमंत्री यांचे प्रधान सचिव,
मा.उपमुख्यमंत्री यांचे सचिव,
मा.मंत्री (कामगार) यांचे खाजगी सचिव,

मा.राज्यमंत्री (कामगार) यांचे खाजगी सचिव,
मुख्य सचिव, महाराष्ट्र शासन,
अपर मुख्य सचिव / प्रधान सचिव / सचिव सर्व मंत्रालयीन विभाग, मंत्रालय, मुंबई.

(मंत्रालयीन सर्व विभागांकडून हा शासन आदेश त्यांच्या अधिनस्त असलेल्या सर्व सार्वजनिक उपक्रमांच्या/कार्यालयांच्या निदर्शनास आणण्यात यावा.)

महालेखापाल, महाराष्ट्र १/२ (लेखा अनुज्ञेयता व लेखा परिक्षा) मुंबई/नागपूर.
मुख्य वनसंरक्षक, वन विभाग, नागपूर
अधिदान व लेखा अधिकारी , वांद्रे,मुंबई
निवासी लेखा परिक्षा अधिकारी , मुंबई
सर्व कोषागारे
मुख्य अभियंता, सार्वजनिक बांधकाम विभाग
मुख्य अभियंता, जलसंपदा विभाग
सर्व विभागीय आयुक्त
कामगार आयुक्त, कामगार भवन, दुसरा मजला, ई ब्लॉक, सी- २०,बांद्रा- कुर्ला कॉम्प्लेक्स, सिटी पार्कजवळ, बांद्रा (पू), मुंबई.५१
सर्व जिल्हाधिकारी
सर्व मुख्य कार्यकारी अधिकारी, जिल्हा परिषद
सर्व महानगरपालिका/नगरपालिका आयुक्त
सर्व गटविकास अधिकारी, पंचायत समिती
सर्व मुख्याधिकारी, नगर परिषद
सर्व नोंदणी अधिकारी
माहिती व जनसंपर्क अधिकारी मंत्रालय, यांनी सदर मार्गदर्शक सुचनेस व्यावसायिक प्रसिध्दी देण्याची विनंती करण्यात येत आहे.

कक्ष अधिकारी (प्रशासन-२) उद्योग,ऊर्जा व कामगार विभाग यांना सदर शासन निर्णय वेबसाईटवर टाकण्याच्या विनंतीसह अग्रेषित.

निवडनस्ती (कामगार ७अ)

परिशिष्ट - अ

GUIDELINES

FOR

EMPLOYERS

UNDER

BUILDING AND OTHER CONSTRUCTION WORKERS

(REGULATION OF EMPLOYMENT AND CONDITION OF SERVICE) ACT 1996



LABOUR DEPARTMENT

GOVERNMENT OF MAHARASHTRA

PREFACE

Attention to the matter of health & safety is a responsibility of everyone at workplace, but it is of particular importance in the construction industry, where the accident rate is so high. While substantial improvements have been made in construction health and safety since last decade, it is sadly the case that large number of persons are killed or injured on a construction site due to accidents and many more suffer from health problems. Simple measures can prevent accidents and deaths.

The Labor Department of Government of Maharashtra has prepared this document to explain the roles and responsibilities for conducting and managing work performed by Employers. The objective of these guidelines is to facilitate safe execution of the works by incorporating Health & Safety factors into construction program in a structured way as per the various requirements of the job and to assist construction employers in providing safe and healthful workplaces. This document identifies standards applicable to the hazards most commonly found at work sites in the construction industry and those most likely to have a significant positive impact on the safety and health practices of contractors within this industry. This publication does not itself supersede the provisions of The Building & other Construction Workers Act-1996 / The Maharashtra Building & other Construction Workers Rules-2007. This document is not intended to replace the safety regulations governing the Contractor's operations

These guidelines will help you to manage or avoid the accidents and to ensure your own health and safety as well as the health and safety of the people who work for you, your clients, and others such as the public. Make the use of this toolkit.

If we all work together we can make the construction industry a healthier and safer place to work in and can achieve the prime objective of **"ZERO INCIDENT/ ACCIDENT"**

Dr.Kavita Gupta
Principal Secretary
Labour Department, Govt. of Maharashtra

INDEX

1.APPLICABILITY & REGISTRATION OF ESTABLISHMENTS

1.1 APPLICABILITY OF THE ACT:

This Act applies to every establishment which employs or had employed on any day of the preceding 12 months, ten or more building workers in any building or other construction work.

Establishment: It means any establishments belonging to or under the control of government, any body corporate or firm , and individual or association or other body of individuals which or who employs building workers in any building or other construction work and includes as establishment belonging to a contractor , but does not include a individual who employs such workers in any building or construction work in relation to his own residence , the total cost of such construction not being more than rupees 10 lakhs.

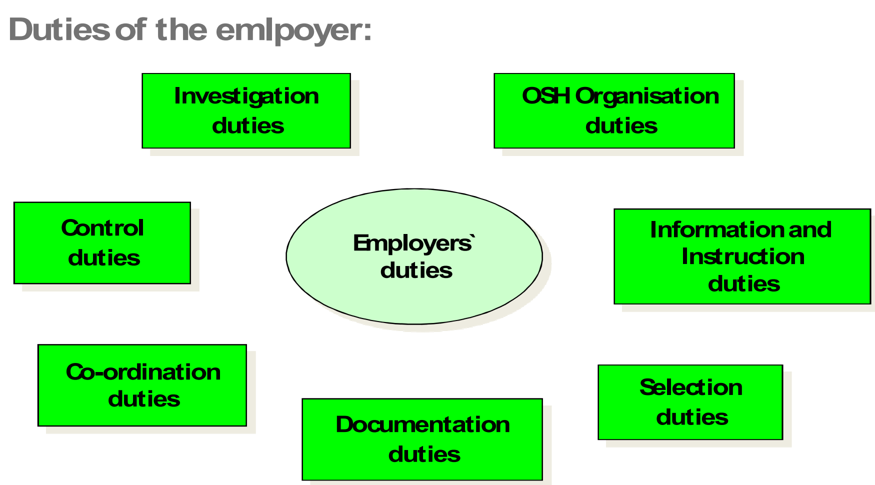
Building or other construction work : It means construction, alteration , repairs , maintenance or demolition of buildings , streets, roads, railways, tramways, airfields, irrigation , drainage, dams, tunnels bridges, towers etc.

1.2 Registration of an establishment: Every employer shall make an application to the Registering Officer within a period of 60 days from the commencement of his establishment for registration in FORM-I along with fees prescribed.

Grant of certificate of registration:-
The Registering Officer, after receiving application shall register the establishment and issue a certificate of registration to the applicant within fifteen days of receipt of application if such applicant has complied with the entire requirement as laid down in these rules.

2.DUTIES AND RESPONSIBILITIES OF EMPLOYERS:

- It shall be the duty of every employer to comply the requirements of these rules as are related to him:
- An employer shall not permit an employee to do anything not in accordance with the generally accepted principles of standard safe operating practices connected with building and other construction work as specified by the State Government.
- To provide safe and healthy work environment at all places.
- To ensure proper training of persons in safe work procedures.
- To take prompt and necessary actions to prevent and eliminate unsafe acts and conditions.
- To review safety issues and recommendations for further improvements.
- To publicise and maintain the safety manual.
- To assess the risk of activities to be executed by carrying out risk assessment and taking necessary actions thereof.
- To ensure all necessary coordination and cooperation between all parties involved in the project to avoid or minimize the risk to health and safety of persons during execution of the work.



3. HEALTH AND SAFETY POLICY

Every establishment employing fifty or more building workers shall prepare written statement of policy in respect of safety and health of building workers and submit the same for the approval of the Chief Inspector;

The policy shall include commitment of management to:

- Prevent the accident, health hazards to workers
- Continually improve health, safety by adopting best available technology and processes .
- Comply with applicable laws .
- Inculcate health, safety amongst the employees and associates by way of collaboration, consultation .
- Provide adequate training to workers, vendors, contractors to demonstrate commitment and involvement, responsibility and accountability to achieve health and safety performance
- Fixing the responsibility of contractor, sub contractors, transporters and other agencies entering the site.
- Using relevant techniques and methods such as risk assessment and taking all the remedial measures.
- Form organizational set-up to carry out the declared policy, clearly assigning the responsibility at different levels

The policy shall be made widely known to workers, contractors , etc by displaying at conspicuous places in the languages understood by majority of workers.

4. RISK ASSESSMENT

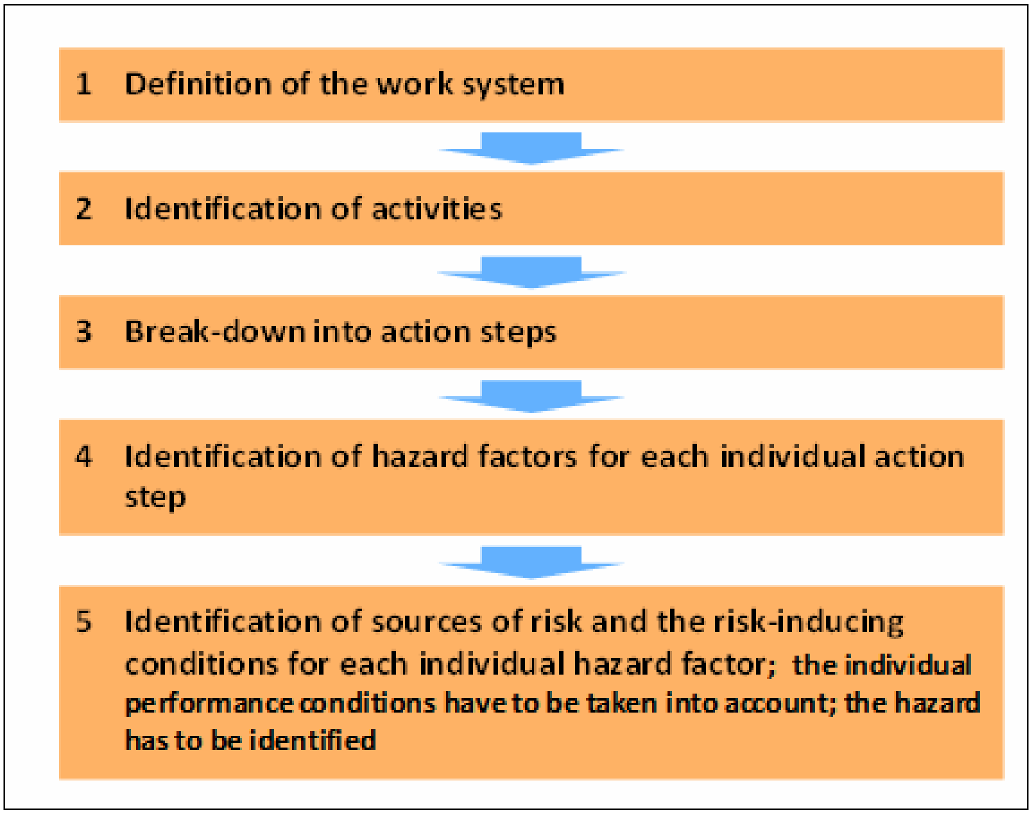
Every employer shall assess the risk of activities to be executed by carrying out risk assessment and taking necessary actions thereof.

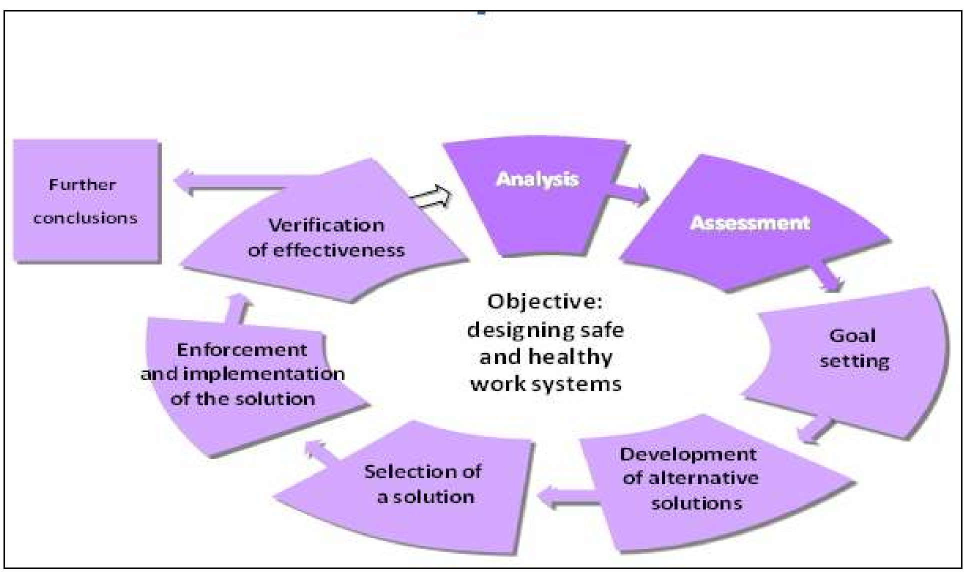


Risk assessment is the process of systematic investigation of a task and subtasks on risks during the execution of activities. This covers:

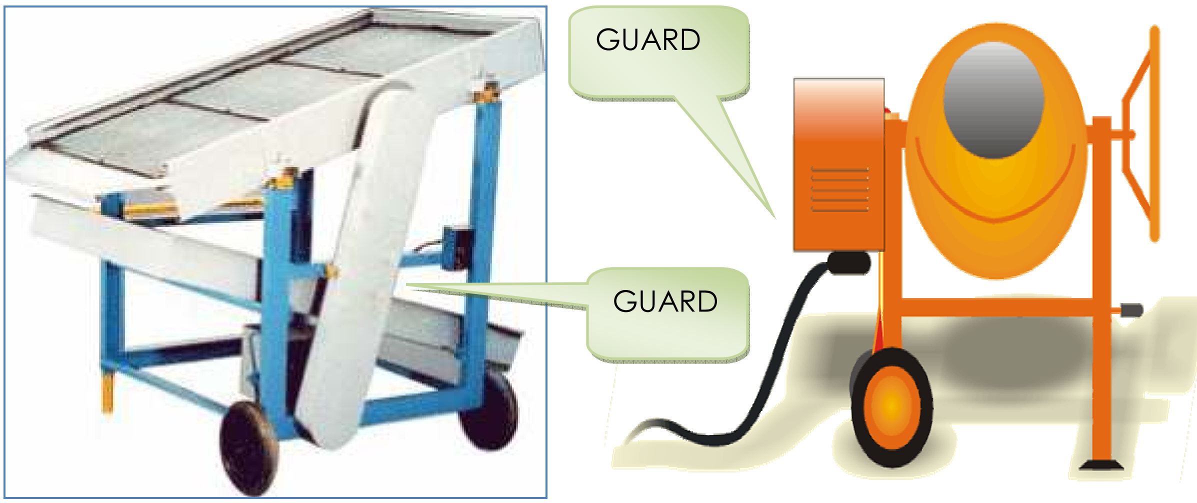
1. Define the tasks should be analyzed.
2. Distribute these tasks in important steps or subtasks.
3. Define potential problems with respect to S&H.
4. Formulate control measures for all (possible) identified problems.
5. Formulate a procedure, or method to work with.

STEPS FOR RISK ASSESSMENT





5. MACHINE GUARDING

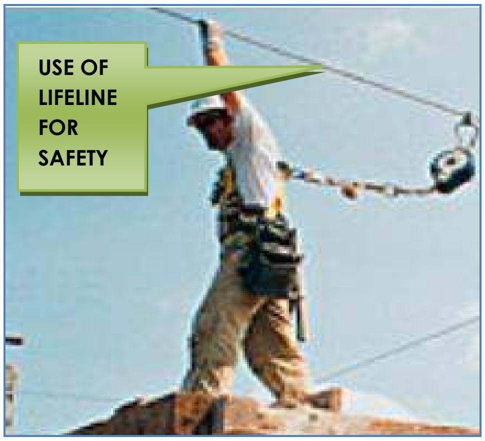


Fencing of motors, etc.:-

An employer shall ensure at a construction site that-

- All motors, cogwheels, chains, and friction gearing, flywheels, shafting, dangerous and moving parts of machinery are securely fenced ;
- The fencing of dangerous parts of machinery is not removed while such machinery is in motion or in use;
- No part of any machinery, which is in motion and which is not securely fenced is examined, lubricated, adjusted or repaired except by a person skilled for such examination, lubrication, adjustment or repairs;
- When a machine is stopped for servicing or repairs, adequate measures are taken to ensure that such machine does not re-start inadvertently.

6.WORKING AT HEIGHT





- All passageways, platforms and other places of construction work shall be kept by the employer free from accumulations of dust, debris or similar material and from other obstructions that may cause **tripping.**
- No employer shall allow any building to use the passageway, or a scaffold, platform or any other elevated working surface which is in a slippery and dangerous condition and shall ensure that water, grease, oil or other similar substances which may cause the surface slippery, be removed or sanded, saw dusted or covered with suitable material to make it safe from **slipping hazard** at a building or other construction work.
- Every open side or opening into or through which a building worker, vehicle or lifting appliance or other equipments may fall at a building or other construction work shall be covered or guarded suitably by the employer to prevent such fall except where free access is necessary by reasons of the nature of the work.
- Whenever there is a possibility of falling of any material, equipment or building worker at a construction site, adequate and suitable safety net shall be provided by employer in accordance with the national standards
- Person required to work at height shall have sound health and do not suffer from vertigo.
- Facilities shall be provided to work at height safely as well as safe means of access.

7. CONSTRUCTION, REPAIRS AND MAINTENANCE OF STEEP ROOFS





Work on steep roof:-

The employer shall ensure at a construction site of a building or other construction work that all practicable measures are provided to protect the building workers against sliding when carrying out work on steep roofs.

Construction and installation of roofing brackets:-

The employer shall ensure at a construction site of a building or other construction work that-

- Roofing brackets are constructed to fit the pitch of steep roof and such brackets are used to provide level working platform;
- A roofing bracket is secured in its place by nailing pointed metal projections attached to the underside of such bracket and securely driven into a "steep roof on which it is used or secured by a rope passed over the ridge pole and tie of such roof.

Crawling boards:-

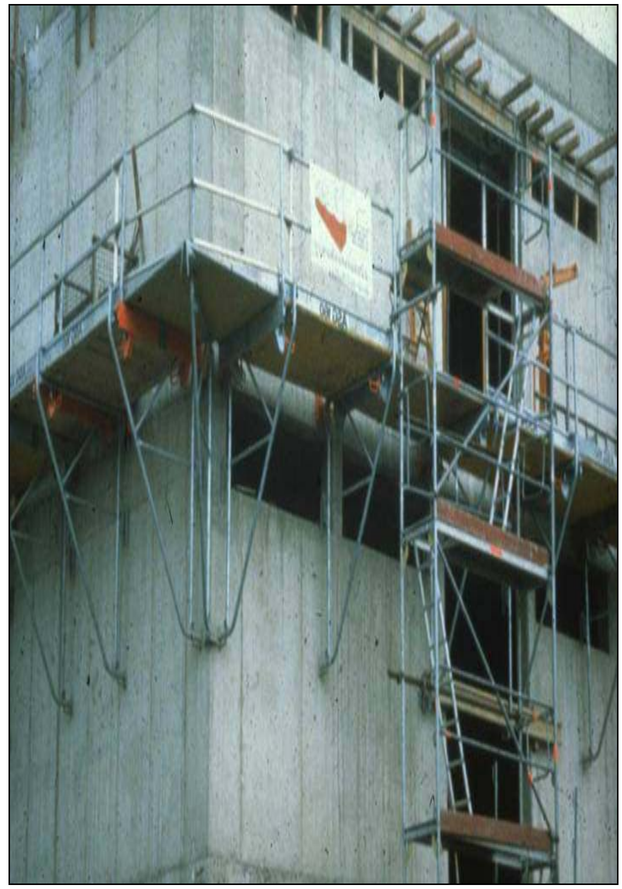
The employer shall ensure at a construction site of a building or other construction work that, -

All crawling boards used for work on steep roofs are of adequate strength, made of sound material and of the type approved for the purpose of their use as per relevant national standards A firmly fastened life line of adequate

strength is strung beside each crawling board throughout its length while using such crawling boards.

8. SCAFFOLDING:





Hazard: When scaffolds are not erected or used properly, fall hazards can occur.

Safety Measures:

- Scaffold must be sound, rigid and sufficient to carry its own weight plus four times the maximum intended load without settling or displacement. It must be erected on solid footing.
- Unstable objects, such as barrels, boxes, loose bricks or concrete blocks must not be used to support scaffolds or planks.

- Scaffold must not be erected, moved, dismantled or altered except under the supervision of a competent person.
- Scaffold must be equipped with guardrails, midrails and toe boards.
- Scaffold accessories such as braces, brackets, trusses, screw legs or ladders that are damaged or weakened from any cause must be immediately repaired or replaced.
- Scaffold platforms must be tightly planked with scaffold plank grade material or equivalent.
- A "competent person" must inspect the scaffolding and, at designated intervals, reinspect it.
- Rigging on suspension scaffolds must be inspected by a competent person before each shift and after any occurrence that could affect structural integrity to ensure that all connections are tight and that no damage to the rigging has occurred since its last use.
- Synthetic and natural rope used in suspension scaffolding must be protected from heat-producing sources.
- Employees must be instructed about the hazards of using diagonal braces as fall protection.
- Scaffold can be accessed by using ladders and stairwells.
- The use of barrels, boxes, loose tile box or other unsuitable objects as working platform shall not be permitted.
- The platform shall not be used for tools or material otherwise than suitable receptacles or boxes to prevent from the platform.
- Scaffold shall be protected from accidental collisions with the traffic.
- Care shall be taken to ensure that no un insulated electric wire exists within 3 metres of working platform, gangways , runs etc of the scaffold.

9. LADDERS AND STEP LADDERS:



Construction and safe use:-

The employer shall ensure at a construction site of a building or other construction work that-

- Every ladder or step-ladder used in building or other construction work is of good construction, made of sound material and of adequate strength for the purpose for which such ladder or step-ladder is used;
- When a ladder is used as a means of communication, such ladder is lashed to a fixed structure so that while working on such ladder it does not slip;
- A ladder or step-ladder does not stand on loose bricks or other loose packing and has a level and firm footing;
- Where it is required, in case of use of fixed ladders, sufficient foothold and handhold are provided for use by the building worker;

- Every ladder is secured so as to prevent undue swaying; equally and properly supported on each of its upright;
- Every ladder is secured so used as not to cause undue sagging; and
- Every ladder is secured placed as nearly as possible at an inclination of four in one;
- The use of all ladders and step-ladders conform to the relevant national standards for their use.

10. BARRICADES:




Contractor shall erect and maintain barricades required in connection with his operation to guard or protect- Hoisting areas, areas adjudged hazardous, and Owner's existing property subject to damage by the contractor's operations.

Guarding of floor opening and floor holes:





- Every temporary floor opening shall have railings, or shall be constantly attended by Supervisors appointed by Contractor's safety officer / Manager.
- Every floor hole into which persons can accidentally fall shall be guarded by either a railing with toe board on all exposed sides, or a floor hole shall be provided with a cover of adequate strength and it should be hinged in place. When the cover is not in place, the place, the floor hole shall be constantly attended by someone or shall be protected by a removable railing.
- Every stairway floor opening shall be guarded by a railing on all exposed sides, except at entrance to stairway.

  Every ladder way floor opening or platform shall be guarded by a guard railing with toe board on all exposed sides (except at entrance to opening) with the passage through the railing either provided with a swinging gate or so offset that a person can not directly into the opening

Guarding of open-side floors and platform

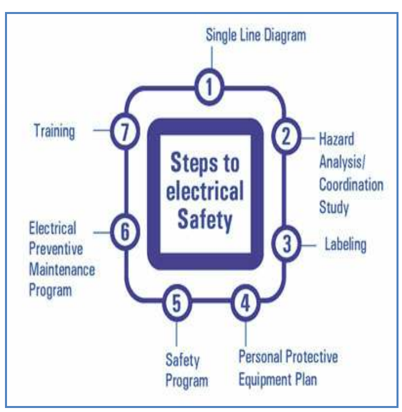




Every open-sided floor or platform above adjacent floor or ground level shall be guarded by a railing or all open sides except where there is entrance to ramp, stairway or fixed ladder. The railing shall be provided with a toe board beneath the open sides wherever, persons may pass or there is moving machinery and there is equipment with which failing materials could create a hazard.

11. ELECTRICAL SAFETY:







- Before commencement of any building or other construction work, employer shall take adequate measures to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuit which may cause electrical hazard during the course of his employment at a building or other construction work.
- The employer shall display and maintain suitable warning signs at conspicuous places at a building or other construction work in Hindi, Marathi and in a local language understood by the majority of the building workers.
- In workplaces at a building or other construction work where the exact location of underground electric power line is not known, the building workers using jack hammers, crow bars and other hand-tools which may come in contact with a live electrical line, shall be provided by the employer with insulated protective gloves and foot-wear of the type in accordance with the national standards.
- The employer shall ensure that, as far as practicable, no wiring, which may come in contact with water or which may be mechanically damaged, is left on ground or floor, at a building or other construction work.
- The employer shall ensure that all electrical appliances and current carrying equipment used at a building or other construction work are made of sound material and are properly and adequately earthed.
- The employer shall ensure that all temporary electrical installations at a building or other construction work are provided with earth-leakage circuit breakers.
- Frayed, damaged or worn electrical cords or cables are promptly replaced.
- Protect flexible cords and cables from damage. Sharp corners and projections should be avoided.
- Use extension cord sets used with portable electric tools and appliances that are the three-wire type and designed for hard or extra-hard service.
- Do not bypass any protective system or device designed to protect employees from contact with electrical energy.

- Overhead electrical power lines are located and identified. Ensure that ladders, scaffolds, equipment or materials never come within 10 feet of electrical power lines.
- Multiple plug adapters are prohibited.

Influence of the strength of current on the impact on the human being

	Strength of current 1 mA = 1/1000 A		Effects on the human being
I	Up to 25 mA	below 5 mA:	only slight effects
		5–15 mA:	Cramps, but it is still possible to „let go“, hypertension.
		15–25 mA:	Difficulties to let go, electric marks possible.
II		25 - 80 mA	Hypertension, heart rhythm irregular, electric marks and burns.
		50–80 mA:	Unconsciousness, no breathing, temporary cardiac arrests.
III	80 mA - 3 A		cardiac arrest (fibrillation) - death
IV	more than 3 A		burns and damages of internal organs

12. PERSONAL PROTECTIVE EQUIPMENTS (PPE):

Personal protective equipment means all equipments which is intended to be worn or held by a person who is at work and which protects him or her against one or more risk to his or her safety.

Examples of PPE include-

- Safety helmet and safety shoes
- Approns
- Handgloves
- Goggles, welding shield
- Face mask
- Dust mask

- Ear plug/ Ear muff
- Safety harness

Safety helmet and safety shoes shall be provided compulsory to all persons at site.



NO USE OF PPES CAUSING RISK TO THE SAFETY & HEALTH OF WORKERS

Eye and Face Protection

- Safety glasses or face shields are worn anytime work operations can cause foreign objects getting into the eye such as during welding, cutting, grinding, nailing (or when working with concrete and/or harmful chemicals or when exposed to flying particles).





Conformance to standard: IS: 5983 – 1980

- Safety glasses or face shields are worn when exposed to any electrical hazards including work on energized electrical systems.

Hand Protection

- Gloves should fit snugly.
- Workers wear the right gloves for the job (for example, heavy-duty rubber gloves for concrete work, welding gloves for welding, insulated gloves and sleeves when exposed to electrical hazards).
- Workers shall wear hard hats where there is a potential for objects falling from above, bumps to their heads from fixed objects, or of accidental head contact with electrical hazards.
- Hard hats are routinely inspected for dents, cracks or deterioration.
- Hard hats are replaced after a heavy blow or electrical shock.
- Hard hats are maintained in good condition.

Conformance to standard: IS 2925 - 1984

PPE MATRIX

Annexure A

PPE / Category	Head Protection	Safety glass	Face shield	Welding helmet	Foot Protection	Safety harness	Hearing protection	Hand Protection	Body Protection	Respiratory Protection	Protection against Dust	Organic mask	Air supplied hood				
Executives / Supervisors	√				√												
Foreman	√				√												
Unskilled workmen	√				√						√						
Formwork	√				√												
Scaffolding	√				√												
Masonry works	√				√			√			√						
Bar bending works	√				√			√									
Grinding/Polishing	√	√			√		√	√			√						
Rigging	√				√												
Welding/Cutting	√	√	√	√	√			√									
Handling corrosive liquid	√	√			√			√	√								
Painting	√				√												
Liquid bitumen work	√				√												
Sand blasting	√	√			√				√								
Insulation work	√				√												
Roof work	√	√			√												
Work shop (P&M, Carp)	√				√		√										
Work at heights above 1.8 M.	√				√	√											

13. LIFTING MACHINES:





Construction and maintenance of lifting appliances:-

Hazard: Significant and serious injuries may occur if cranes are not inspected before use and if they are not used properly. Often these injuries occur when a worker is struck by an overhead load or caught within the crane's swing radius. Many crane fatalities occur when the boom of a crane or its load line contact an overhead power line.

Safety Measures:

- Check all crane controls to insure proper operation before use.
- Inspect wire rope, chains and hook for any damage.
- Know the weight of the load that the crane is to lift.
- Ensure that the load does not exceed the crane's rated capacity.
- Check all rigging prior to use; do not wrap hoist ropes or chains around the load.
- Fully extend outriggers.
- Do not move a load over workers.
- Barricade accessible areas within the crane's swing radius.
- Watch for overhead electrical distribution and transmission lines and maintain a safe working clearance of at least 10 feet from energized electrical lines.

- All lifting appliances, lifting gears, chains, rings, hooks, shackles and swivels etc shall be got thoroughly examined by a competent person as per Rules/Act.

14. TRANSPORT AND EARTH MOVING EQUIPMENTS




Earth moving equipment and vehicles:-

The employer shall ensure at a construction site of building or other construction work that-

- All vehicles and earth moving equipment are made of good material, proper design and sound construction and are sufficiently strong for the purpose for which such equipment are used and are maintained in good state of repair and are properly used in accordance with standard safe operating practices:
- All transport or earth moving equipment and vehicles are inspected at least once a week by a responsible person and in case any defect is noticed in such equipment or vehicle, it is immediately taken out of use: Power tracks and tractors are equipped with effective brakes, head lights and tail lamps and are maintained in good repair and working order;
- Safe gangways are provided for to and fro movement of building workers engaged in loading and unloading of lorries, trucks, trailers and wagons;
- Trucks and other equipment are not loaded beyond their safe carrying capacity which shall be clearly marked on such trucks and other equipment;
- Handles of hand trucks are so designed as to protect the hands of the building workers

working on such trucks, or such handles are provided with knuckle guards;

- No unauthorised person rides the transport equipment employed in such work;
- A driver of transport equipment manoeuvres such equipment under the direction of a signaler;
- Adequate precaution such as isolating the electric supply or erecting overhead barriers of a safe height is taken when earth moving equipment or vehicles are required to operate in dangerous proximity to any live electric conductor;
- Vehicles and earth moving equipments are not left on a slope with the engine of such vehicles or equipment running;

Power shovels and excavators:-

The employer shall ensure that –

- A shovel or an excavator whether operated, by steam or electric or by internal combustion, used for such work is constructed, installed, operated, tested and examined as required under any law for the time being in force and the relevant national standards;
- Excavator equipped for use as a mobile crane is examined and tested and fitted with an automatic safe working load indicator;
- Buckets or grabs of power shovels are propped to restrict the movement of such buckets or grabs while being repaired or while the teeth of such buckets or grabs are being changed.

Bulldozers:-

The employer shall ensure that-

- An operator of a bulldozer before leaving such bulldozer –applies the brakes; lowers the blade and sipper; and puts the shift lever into neutral;
- A bulldozer is left on level ground at the close of the work for which such bulldozer is used;
- The blade of a bulldozer is kept low when such bulldozer is moving uphill;
- The bulldozer blades are not used as brakes except in an emergency.

Scrapers:-

The employer shall ensure that-

- A tractor and scraper is joined by safety line at the time of its operation;
- The scraper bowls are propped while blades of such scraper are being replaced;
- A scraper moving downhill is left in gear.

Mobile asphalt layers and finishers:-

The employer shall ensure that-

- A mixture elevator is within a wooden or sheet metal enclosure with a window for observation, lubrication and maintenance;
- bitumen scoops have adequate covers;

Pavers:-

The employer shall ensure at a construction site of a building or other construction work that pavers are equipped with guards suitable to prevent building workers from walking under the skip of such pavers.

Road rollers

The employer shall ensure that-

- before a road roller is used on the ground, such ground is examined for its bearing capacity and general safety, especially at the edges of slopes such as embankments on such grounds;
- a roller is not moved downhill with the engine out of gear.
- when asphalt plants are working on a public road, adequate traffic control is established on such road and the building workers working with such plant are provided with reflecting jackets;
- a sufficient number of fire extinguishers are kept in readiness on such work place where fire hazards may exist;
- the materials are loaded on the elevator after the drying drain has warmed up of such elevator;

- No open light is used for ascertaining the level of asphalt;
- Inspection opening is not opened till there is a pressure in the boiler which may cause injury to a building worker.



15. EXCAVATION AND TUNNELING WORK:





Warning signs and notices:-

- The employer shall ensure that-suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation or tunneling; shall be displayed or erected at conspicuous places in Hindi, Marathi and in a language understood by the majority of such building workers at such excavation or tunneling work;
- Such warning signs and notices with regard to compressed air working shall include -the danger involved in such compressed air work; fire and explosion hazards and the emergency procedures for rescue from such danger or hazards.

Illumination:-

- The employer shall ensure that all work places where excavation or tunnelling works are carried out shall be adequately illuminated in accordance with the relevant national standards.
- Every employer carrying out excavation or tunneling works at a construction site of a building or other construction work shall provide for emergency generators.

Safe access:-

The employer shall ensure at a construction site of a building or other construction work that ladders, staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where the depth of such excavation exceeds one point five meters and such ladders, staircases or ramps comply with the relevant national standards.

Breathing apparatus:-

The employer shall ensure at a construction site of a building or other construction work that suitable breathing apparatus is provided to a building worker while working in compressed air environment for his use at excavation or tunneling work.

Safety measures for tunneling operation:-

The employer shall ensure at a construction site of a building or other construction work that,-

- where there is a danger of falling or sliding of material from the roof face or wall of a tunnel, adequate measures such as shoring, supporting by means of rock bolts, segments or steel sets are taken for the safety of building workers;
- the excavated areas are made safe by use of suitably designed and installed steel sets, rock bolts or similar other safe means;
- the portal areas of a tunnel with loose soil, or rock, likely to cause injury to a person are adequately protected with supports.

Means of communication:-

The employer shall ensure that reliable and effective means of communication such as telephone or walkie-talkie are provided and are maintained in working order for

arranging better and effective communication at an excavation or tunnelling work at the following locations.

Signals:-The employer shall ensure at a construction site of a building or other construction work that the standard audio or video signals are used in excavation or tunnelling work and are conspicuously located or displayed near entrance to the work place and in such other locations as may be necessary to bring such signals to notice of all building workers employed in such excavation or tunneling work.

Clearances:-

The employer shall ensure at a construction site of a building or other construction work that-

(a) The minimum lateral clearance of half a meter is maintained between any part of a vehicle and any fixture or any equipment used in an excavation or tunneling work after allowing the throw or swing of

Inflammable oils:-

The employer shall ensure at a construction site of a building or other construction work that inflammable oils with the flash point below the working temperature that is likely to be encountered in a tunnel are not used in excavation or tunneling work.

Flameproof equipment:-

The employer shall ensure at a construction site of a building or other construction work that only flameproof equipment of appropriate type as per relevant national standards is used where there is danger of flammable or explosive atmosphere being prevalent inside the tunnel.

Use of gases underground:-

The employer shall ensure at a construction site of a building or other construction work that-

- petrol or liquefied petroleum gas or any other flammable substances are not used, stored inside the tunnel except with the prior approval of the project engineer
- after the use of the petroleum or liquefied petroleum gas, or highly inflammable substances , all remaining petroleum or liquefied petroleum gas or highly inflammable substances are removed immediately from such tunnel;

- No oxy-acetylene gas is used in a compressed air environment in excavation or tunnelling work.

Flooding:-

The employer shall ensure at a construction site of a building other construction work that-

- water tight bulkhead doors are installed at the entrance of a tunnel to prevent flooding during a tunneling work, where more than one tunnel is driven from a shaft;
- all necessary measures are taken to ensure that no building worker is trapped in any isolated section of a tunnel when any bulkhead door of such tunnel is closed;
- Where there is likelihood of flooding or water rushing into a tunnel during a tunnelling work, arrangements is made for immediate starting of water pumps to take out water of such flooding or water rushing and for giving alert signals to the building workers and other persons to keep them away from danger.

16. CONCRETE WORK:

The employer shall ensure at a construction site of a building or other construction work that-

- All construction with the use of concrete or reinforced concrete are based on plants as -include specifications of steel and concrete and other material to be used in such construction; give technical details regarding methods for safe placing and handling of such materials, indicate the type, quality and arrangement of each part of a structure of such construction; and explain the sequence of steps to be taken for completion of such construction;
- formwork and shores used for concrete work are structurally safe and are properly braced or tied together so as to maintain position and shape of such formwork or shores;
- Formwork structure used for concrete work has sufficient catwalks and other secure access for inspection of such structure if such structure is in two or more tiers.

Loading/Unloading of steel

- Adequate capacity slings and lifting tackles shall be used.
- The material shall be stacked properly in the steel yard.

Bar Bending and cutting

- Only trained worker must carry out bending and cutting operation.

Concrete Transit Mixers:

- During cleaning inside the mixer , the operating power of the mixer shall be locked in OFF position. Suitable warning signs shall be displayed.
- Proper access with railing shall be provided to reach the hopper.

Concrete Pump

- While setting of the concrete pump ,the area shall be leveled and firmed. Vehicles shall be parked at least 1.5 meters away from the edge of the excavation.
- Safe access shall be provided for concrete delivery trucks.

17. STORAGE, MATERIAL HANDLING & HOUSE KEEPING:

The employer shall ensure at a construction site of a building or other construction works that:-

- All building materials are stored or stacked in a safe and orderly manner to avoid obstruction of any passageway or place of work;
- Material piles are stored or stacked in such a manner as to ensure stability;
- Material or equipment is not stored upon any floor or platform in such quantity as to exceed its safe carrying capacity;
- Material or equipment is not stored or placed so close to any edge of a floor or platform as to endanger the safety of persons below or working in the vicinity.

Housekeeping & Sanitation

At the work site, an adequate supply of potable water shall be provided, as well as clean drinking water dispensers. Potable water for clean up shall be provided. Where non potable water is used for industrial or fire fighting purpose it shall be identified by

appropriate signs. Apart from the above, the contractor has to adhere to general neatness of working areas, daily disposal of waste and trash, maintenance of clear passageways and walkways, providing adequate lighting, removal of projecting nails, removal of oil and grease, provision for waste containers, and maintaining adequate sanitary facilities for the work force.

Disposal of debris:-

The employer shall ensure at a construction site of a building or other construction work that-

- Debris are handled and disposed of by a method which does not cause danger to the safety of a person;
- Debris are not allowed to accumulate so as to constitute a hazard;
- Debris are kept sufficiently moist to bring down the dust within the permissible limit;
- Debris are not thrown inside or outside from any height of such building or other construction work;
- On completion of work, left over building material, article or other substance or debris are disposed of as soon as possible, to avoid any hazard to any traffic or person.

18. WORK PERMIT SYSTEMS:

The work permit system shall be designed with an intention to specify adequate safety measures in advance against identified hazards of specific nature and stipulate implementation of safety measures by the perm ittee to ensure safe execution of work. Work Permits shall be in accordance with the following Procedures.

- Site/ Area in charge will issue the work permit to the site engineer and EHSO will counter sign the permit. Before issuing the work permit both issuer and receiver of the wok permit will visit the site assess the hazards and take counter measures.
- The permit will be immediately closed after the job is completed.

Both issuer and receiver of the work permit will visit the site and confirm job is done safely, no person is left out and housekeeping is done before closing the work permit.

The following work permit will be adopted at site

- **Excavation Work Permit** – Work at more than 2m deep will performed with necessary permit.
- **Hot Work Permit** – Any work, tools or equipment (welding, burning, grinding, vehicles, portable welders, etc.) which might provide a source of ignition for a flammable mixture.
- **Permit to open man hole / lift shaft opening** – To open the openings on floor, manhole covers of tanks/ sewer lines and lift shaft openings work permits will be obtained.
- **Permit to Work on Plant & Machinery** – To carry out any job on electrical / mechanical equipments this work permit procedure will be followed.
- **LOCKOUT / TAG OUT** – Before working on any electrical or mechanical equipment the power source of the equipment will be isolated and the control switches will be locked and "Do not Operate – Men at work" safety Tagging will be provided. It will be the part of work permit system.

19. FIRE SAFETY:



An employer shall ensure at a construction site of a building or other construction work that; such construction site is provided with:-

- fire extinguishing equipment sufficient to extinguish any probable fire at such construction site;
- an adequate water supply at ample pressure as per national standards

- Number of trained persons required to operate the fire extinguishing equipment.
- fire-extinguishing equipment is properly maintained and inspected once in a year by the responsible person;

PREVENTION OF FIRE:

- Electrical wiring equipment for heating, light or power purposes shall be installed in compliance with the statutory requirements.
- Internal combustion engine-powered equipment shall be located with exhausts well away from combustible materials.
- Smoking is to be prohibited in the vicinity of fire hazards, and such areas shall be conspicuously posted.
- In location of temporary buildings and yard storage, appropriate care shall be taken for proper separation to allow an accumulation of fire potential.
- Gas Cylinders: All compressed gas cylinders shall be transported, used and stored properly. All cylinders (full or empty) shall be secured in place at all times.

20.HEALTH & HYGIENE

Hygiene at work place including construction sites, offices, labour camps, and canteens is the crucial element as it determines the health of the work force deployed. Providing and maintaining cleanliness, sanitation, adequate supply of potable water along with provision of eateries, accommodation, toilet, and urinals are prerequisite to occupational hygiene and good health of the work force.

Medical examination of building workers, etc.:-

The employer shall ensure at a construction site of a building or other construction work that-

- A building worker who is employed for a work involving such risk or hazards, inherent in such work is medically examined.
- Every operator of a crane, winch or other lifting appliance, transport equipment or vehicle, is medically examined before employing such operator and again periodically and certificate of medical examination shall be obtained in prescribed format.

Occupational health centres:-

The employer shall ensure at a construction site of a building or other construction work involving hazardous processes like Roof work, Steel erection, Work under and over water, Demolition, Work in confined spaces that an occupational health centre, mobile or static is provided and maintained in good order at such site.

Ambulance Room:-

The employer shall ensure at a construction site of a building or other construction work that,-

- In **case five hundred or less workers** are employed ,there is an ambulance room at such construction site or an arrangement with a nearby hospital for providing an ambulance room and such ambulance room is in the charge of a qualified nurse and the service of such ambulance room is available to building worker employed at such construction site at every time when he is at work;
- In case **more than five hundred** building workers are employed, there is an ambulance room with effective communication system and such ambulance room is in the charge of a qualified nurse and the service of such ambulance room is available to a building worker employed at such construction site at every time when he is at work, and such ambulance room is in overall charge of a construction medical officer;

Ambulance van:-



The employer shall ensure at a construction site of a building or other construction work that an ambulance van is provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van.

Stretchers:-

The employer shall ensure that sufficient number of stretchers is provided at such construction site so as to be readily available in an emergency.

First aid boxes:-

The employer shall ensure at a construction site of a building or other construction work that sufficient number of first aid boxes or cupboards are provided and maintained for providing first-aid to the building workers.

HIV/AIDS prevention and control

The management shall adopt the Policy of "HIV/AIDS Prevention and Control" for workmen engaged and conduct ad HIV- AIDS awareness program via an approved service provider. To promote early diagnosis and to assist affected individual, we will undertake such measures to reduce the risk of transfer of the HIV virus between and among the contractor's personnel and the local community.

Prevention of mosquito breeding

Measures shall be taken to prevent breeding at site. The measures to be taken shall include :

- Empty cans, oil drums, packing and other receptacles, which may retain water shall be deposited at a central collection point and shall be removed from the site regularly.
- Still waters shall be treated at least once every week with oil in order to prevent mosquito breeding.
- Equipment and other items on the site, which may retain water, shall be stored, covered or treated in such a manner that water could not be retained.
- Water storage tanks shall be provided.

Posters in both Hindi and English, which draw attention to the dangers of permitting mosquito breeding, shall be displayed prominently on the site.

Alcohol and Drugs

It shall be ensured that at all times that no employee is working under the influence of alcohol/ drugs which are punishable under Govt. regulations.

21. WORKING HOURS:

Hours of work, intervals of rest and spread over etc.:-

(1) No building worker employed in building or other construction work shall be required or allowed to
work for more than nine hours a day or forty-eight hours a week.

(2) No building worker employed in building or other construction work shall be required or allowed to work continuously for more than five hours unless he had an interval of rest of not less than half an hour.

(3) The working day of a building worker employed in building or other construction work shall be so arranged that inclusive of the intervals of rest, if any, shall not spread over more than twelve hours on
any day.

(4) When a building worker works in any building or other construction work for more than nine hours or any day or for more than forty-eight hours in any week, he shall, in respect of overtime work, be entitled to wages at double the ordinary rate of wages.
(5) Employer should obtain the special permission from the State Government for employment of Female Employee during night i.e. from 19.00 hrs. to 06.00 hrs.

22. WELFARE:

Latrine and urinal accommodation:-

Latrines or urinals shall be provided separately for male and female workers in adequate quantities.

Canteens:-

In every place wherein not less than two hundred and fifty building workers are ordinarily employed, the employer of such building workers shall provide an adequate canteen.

Drinking Water:

In every place the employer shall make arrangements to provide sufficient supply of drinking water with minimum quantity of 5 litres per workman per day.Quality of drinking water shall conform to the requirement of national standards on Public Health (IS-10500:1991). Drinking water facilities shall be easily accessible from all work places.

Labour Accommodation:

The employer shall provide free of charge and within the work site or as near to it, temporary living accommodation to all workers.

The accommodation shall have separate cooking place, bathing and washing and lavatory facilities.

Crèche:

In every place wherein more than 50 female workers are ordinarily employed , there shall be provided and maintained a cretche for the use of children under the age of 6 years of such female workers.

23. EMERGENCY ACTION PLAN:

An employer shall ensure at a construction site of a building or other construction work that in case **more than five hundred** building workers are employed at such construction site emergency action plan to handle the emergencies like- fire and explosion, collapse of lifting appliances and transport equipment, collapse of building, sheds or structures, etc., gas leakage or spillage of dangerous goods or chemicals, drowning of building workers, sinking of vessels, and landslides getting building workers buried, floods, storms and other natural calamities, is prepared.

Emergency - Definition

An event at the site, which may affect several other work areas within and may cause serious injuries, loss of life, serious affliction to health or serious damage to property. This may demand the rescue and relief measures on a war footing and at short notice. External resources may also be required to handle the situation.

Objective

- Preserving the life, property and environment from the consequences of emergencies arising within the site.
- Systematic coordination of emergency control action to arrest escalation of emergency,
- To evacuate personnel within or outside the site where necessary and to rehabilitate them.
- Restoring normalcy in site operation with minimum loss of time.

Emergency Handling Strategies for different Scenarios

Typical Emergency situations

- Occupational Injury & Illness
- Collapse of Constructing Temporary Structure or Lifting Equipment
- Fire & Explosion

- Security breaches
- Flood, Cyclone

The plan shall include-

Emergency response Team:

Emergency response team including incident controller, site controller, communication officer, first aid team, fire fighting team shall be constituted and their rolls and responsibilities shall be defined.

Evacuation Procedure:

The evacuation procedure shall be detailed out in the plan including signal of any emergency and

- Basic do's and don't's followed during emergency.
- Safe assembly points shall be identified and marked in the plan.

Emergency Response Training and Mock drill:

- All persons shall be made aware of emergency preparedness and response plan through display/ toolbox talks
- Emergency contact numbers shall be displayed at all prominent locations.
- Emergency response team shall be imparted training with respect to roles and responsibilities.
- Periodical mock drill for the effectiveness of plan shall be carried out.



24.TOOL BOX TALKS

The purpose of the following Toolbox Talks is to give guidance on the subject matter to be covered during the talk. The talk should be given to groups of workers no greater than twenty in number by their supervisor. Each talk should last between ten to fifteen minutes. An attendance sheet of each talk should be kept showing who presented the session, the workers who attended, and the duration. Safety Training Attendance Record should be used for this purpose.

The following list shows the subjects, which may be covered :

1. Personal Points – Example inserted
2. Manual Handling
3. Hand Tools
4. Woodworking Machinery
5. Ladders
6. Cartridge Tools
7. Compressed Air
8. Oxygen
9. Compressed gas Cylinders
10. Drilling Machines
11. Pre-permit activation job specific toolbox talk

Tool Box Talk No.
Personal Points
• Never take chances. • Carry out the instructions you have been given. • If you do not know or understand – Ask • If you see on unsafe condition – Rectify it or report it. • If you have an accident make sure you report it and get it properly attended to. • Obey all safety signs and rules. • Do not distract others or "horseplay" around • Only operate plant and equipment that you are authorized to. • Never operate machinery unless all the guards are in place. • Always wear the protective clothing and equipment that you have been provided with. • Keep you work place clean and tidy. • Look after you tools, don't leave them on the ground where they can be damaged or where people can fall over them.

25.INDIAN STANDARD SAFETY CODES

S.N.	Particulars	IS Codes
1	Safety Code for Tunneling Work	IS: 4756-1978
2	Code of practice for steel tubular scaffolding (Safety regulations of scaffolding).	IS:4014(Part-2-)-1967
3	Safety code for erection of structural steel Work	IS:7205-1974
4	Safety code for constructions involving use of hot bituminous materials	IS:5916- 1970
5	Safety code for construction, operation and maintenance of river valley projects. (Part-I General aspects.)	IS:10386(Part-I)1983
6	Safety code for construction, operation and maintenance of river valley projects.(Part-II amenities, protective clothing and equipment.)	IS:10386(Part-I)1982
7	Safety code for construction, operation and maintenance of river valley projects.(Part-I General aspects.)	IS:10386(Part-VI)1983
8	Safety code for construction, operation and maintenance of river valley projects (Part-X Storage, handling, detection and safety measures for gases, chemicals and flammable liquids.)	IS:10386(Part-X)-1983
9	Code of practice for design and construction of foundations in soils: General Requirements	IS:1904- 1986
10	Safety requirements for floor and Wall openings, railings and toe boards.	IS:4912-1978
11	Specification for steel scaffolding	IS:5121-1964
12	Safety code for pilling and other deep foundations	IS:5121- 1969
13	Code of practice for steel tubular scaffolding.(Part-II safety regulations for scaffolding)	IS: 4014 (part-II) – 1967
14	Code of practice for steel tubular scaffolding.(Part-I definitions and materials.)	IS:4014 (part-I)1967
15	Safety code for the erection of concrete framed structures	IS:8989- 1978
16	Criteria for safety and design of structures subject to underground blasts	IS:6922- 1973

17	Code of practice for structural use of unreinforced masonry	IS: 1905- 1987
18	Demolition of building-Code of Safety	IS:4130-1991
19	Operation of reservoirs_ Guidelines	IS:7323-1994
20	Code of practiced for design loads (other than earthquake) for buildings and structures. Part-1. Dead loads_ Unit Weights of building Materials and stored materials.	IS:875(part-1)-1987
21	Code of practice for design loads (other than earthquake) for buildings and structures.(Part-2 imposed loads)	IS:875(part-2) 1987
22	Code of practice for design loads (other than earthquake) for buildings and structures. (Part 3 wind loads)	IS: 875(part-3) 1987
23	Code of practice for design loads (other than earthquake) for buildings and structures. (Part 4 snow loads)	IS : 875 (part -4)1987
24	Code of practice for design loads (other than earthquake) for buildings and structures. (Part 5 Special loads and load combination)	IS :875 (part -5) 1987
25	Safety code for scaffolds and ladders	IS:3696(part-1)1987
26	Scaffolds and ladders – Code of safety (part -2 ladders)	Is : 3696 (Part 2) 1991
27	Excavation work – Code of safety	IS :3764 -1992
28	Safety codes for blasting and related drilling operations	IS : 4081 -1986
29	Safety code for handling and storage of building materials	IS:7969-1975
30	Safety code for working with construction machinery	IS : 7293-1974

परिशिष्ट - ब

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15. COMMON HAZARDS

15.1 Air Borne Contaminants
15.2 Impregnation of Timber
15.3 Lead Poisoning
15.4 Toxic Fumes
15.5 Noise
15.6 Vibrations
15.7 Power Supply
15.8 Lighting
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15.10 House-keeping
15.11 Material
15.12 Movement
15.13 Drowning
15.14 Openings
15.15 Weight
15.16 Occupational Health and Hygiene
15.17 Risks to Health at Work